

Notice of Allowability

Application No.

09/954,997

Applicant(s)

LIIKANEN ET AL.

Examiner

Daniel L. Negrón

Art Unit

2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to response filed 20 April 2006.
2. ☒ The allowed claim(s) is/are 1-7, 9-27, 30-36, 39-41, and 44-81 (to renumbered 1-74).
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying Indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

WAYNE YOUNG
SUPERVISORY PATENT EXAMINER

DETAILED ACTION

Allowable Subject Matter

1. Claims 1-7, 9-27, 30-36, 39-41, and 44-81 (to be renumbered 1-74) are allowed.
2. The following is an examiner's statement of reasons for allowance:

Regarding claims 1-7, 9-16, 45-59, 60, 61, 63, 66, and 67, claims 1, 7, 45, 49, and 54, disclose an apparatus and corresponding method for decreasing track widths on magnetic media in a disk drive, wherein an element on a head is skewed to a skew angle no less than 45 degrees relative to each track such that an effective width of the element relative to the tracks is reduced as compared to a nominal width and a skew angle is increased as the head moves from an outer diameter to an inner diameter of the magnetic media and the effective width is at most on-half the nominal width at the inner diameter, which is neither disclosed or an obvious variation of the prior art.

Regarding claims 17-25 and 62, claim 17, discloses a disk drive wherein a skew angle of at least one of a read and write element decreases as the read element and the write element move from an inner diameter to an outer diameter of a magnetic disk, is never less than 45 degrees while the read element and the write element are located within a data storage region and is zero degrees when the read element and the write element are located at a position off of the data storage region, and wherein the physical widths of the read element and the write element are at least double the effective widths of the read element and the write element at the inner diameter, which is neither disclosed or an obvious variation of the prior art.

Regarding claims 26-31 and 63, claim 26, discloses a disk drive wherein a skew angle of at least one of a read and write element decreases as the head moves from an inner diameter to an outer diameter of a magnetic disk, and is at least 60 degrees at the inner diameter and at least 20 degrees at the outer diameter, and wherein the physical widths of the read element and the write element are at least double the effective widths of the read element and the write element at the inner diameter, which is neither disclosed or an obvious variation of the prior art.

Regarding claims 32-36, 39-44, and 64, claim 32, discloses a disk drive wherein a skew angle of a head decreases as the head move from an inner diameter to an outer diameter of a magnetic disk, and is not less than 45 degrees at the inner diameter, and wherein the physical widths of the read element and the write element are at least double the effective widths of the read element and the write element at the inner diameter, which is neither disclosed or an obvious variation of the prior art.

Regarding claims 68-77, claim 68, discloses a disk drive wherein a skew angle of a head relative to tracks on a magnetic disk decreases as the head move from an inner diameter to an outer diameter of the magnetic disk, thereby increasing the effective widths of the read and write elements relative to the physical widths of the read and write elements as the head ,moves from the inner diameter to the outer diameter and the skew angle is at least 45 degrees at the inner diameter and at least 20 degrees at the outer diameter, and wherein the physical widths are at least double the effective widths at the inner diameter, which is neither disclosed or an obvious variation of the prior art.

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Regarding claims 78-81, Reasons for allowance are as discussed in regards to claims 5, 18, 41, and 76 in the previous Office action mailed April 20, 2006.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniell L. Negrón whose telephone number is 571-272-7559. The examiner can normally be reached on Monday-Friday (8:30am-5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne R. Young can be reached on 571-272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DLN 
August 15, 2006


WAYNE YOUNG
SUPERVISORY PATENT EXAMINER